Case Report

SUBCUTANEOUS HYDATID CYST OF THE RIGHT THIGH IN A YOUNG FEMALE: A RARE CASE PRESENTATION

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Abstract

Hydatid disease is a parasitic infection caused by *Echinococcus granuloses*, commonly affecting the liver and lungs. However, isolated subcutaneous hydatid cysts are rare and can pose a diagnostic challenge due to their atypical location and non-specific presentation. We report the case of a 22-year-old female from Ahmadpur, Pakistan, who presented with a painless, gradually enlarging swelling in the anterior aspect of her right thigh for the past 7 years. Physical examination revealed a soft, non-pulsatile, non-tender mass not adherent to the skin or underlying muscle. Ultrasonography suggested a multi-loculated cystic lesion in the subcutaneous plane, raising suspicion of a hydatid cyst. Serological testing for *Echinococcus* IgG was positive. The patient underwent surgical excision of the cyst under general anesthesia. Histopathological examination confirmed the diagnosis of a hydatid cyst with granulomatous inflammation and giant cell reaction. Postoperatively, she was managed with albendazole and discharged in stable condition. This case highlights a rare subcutaneous manifestation of hydatid disease in the thigh. It emphasizes the importance of considering parasitic infections in the differential diagnosis of long-standing soft tissue swellings, especially in endemic areas. Early surgical intervention combined with antiparasitic therapy is essential for complete resolution and recurrence prevention.

Keywords: Echinococcus granuloses, Hydatid disease, hydatid cysts, parasitic infection

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INTRODUCTION

Hydatid disease, or echinococcosis, is a zoonotic infection caused predominantly by the larval stage of *Echinococcus granuloses*[1]. It is endemic in sheep-raising areas such as the Middle East, South Asia, Africa, and parts of South America[2]. Humans act as incidental intermediate hosts in the parasite's life cycle, typically acquiring infection through ingestion of eggs from contaminated food or direct contact with infected dogs[3,4]. The liver (70%) and lungs (20%) are the most common sites of involvement, while primary subcutaneous hydatid cysts remain exceedingly rare, accounting for less than 2% of all cases[5,6,7]. Subcutaneous cysts are thought to result either from hematogenous dissemination or lymphatic spread and may go unrecognized due to their indolent progression and non-specific presentation.[17] These cysts can mimic lipomas, abscesses, or benign soft tissue tumors, leading to diagnostic delays[8].

We report a rare case of an isolated subcutaneous hydatid cyst located in the anterior compartment of the right thigh in a

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young female patient. The chronicity of the lesion, unusual anatomical site, and absence of systemic involvement make this case clinically significant and educationally valuable, especially for physicians practicing in endemic regions.

CASE DESCRIPTION

A 22-year-old female, resident of Ahmadpur, Pakistan, belonging to a lower-middle socioeconomic background, presented to Bahawal Victoria Hospital, Bahawalpur. The patient reported a progressively enlarging swelling in the anterior aspect of the right thigh for the past 7 years. The swelling was first noticed 7 years ago and was initially small and painless. Over time, it gradually increased in size. The swelling was not associated with fever, vomiting, trauma, or systemic symptoms. It was irreducible and did not show signs of inflammation or plasticity. The patient reported no history of Diabetes Mellitus (DM), Hypertension (HTN), ischemic heart disease (IHD), Tuberculosis (TB), or Asthma. She had undergone two previous Cesarean sections, performed three years and one and a half years ago, respectively Family history was non-contributory, with no known familial occurrence of Diabetes Mellitus, Tuberculosis, or Ischemic Heart Disease. The patient reported intermittent use of over-the-counter painkillers for discomfort. She had no known drug or food allergies. The patient has a normal sleep pattern and regular bowel and bladder habits. There is no history of substance abuse. She resides in a rural area, which may expose her to livestock and stray dogs. The patient presented with a swelling in the right thigh that had persisted for approximately seven years. She described it as initially small and painless, gradually increasing in size over time. The swelling was not associated with fever, vomiting, weight loss, or trauma, and it was non-reducible with no changes in skin color, discharge, or pulsation. There was no history suggestive of systemic involvement or an allergic response.

On general physical examination, the pulse was 82 bpm, blood pressure was 116/70 mmHg, respiratory rate was 16/min, and the patient was afebrile. There was no evidence of pallor, jaundice, cyanosis, or pedal edema. Systemic examination revealed a soft, non-tender abdomen with normal bowel sounds. Cardiovascular examination showed audible S1 and S2 with no murmurs. Respiratory examination revealed normal vesicular breath sounds without any added sounds. Central nervous system examination showed a Glasgow Coma Scale of 15/15 and no focal neurological deficits. Local examination of the right thigh revealed a soft, non-tender swelling located on the anteromedial aspect, measuring approximately 12 × 8 cm. It was not fixed to the overlying skin or underlying muscle. The skin over the swelling appeared normal, without ulceration, sinus, or scarring. The swelling was non-pulsatile and had a temperature comparable to the surrounding skin. No lymph nodes were palpable on examination. Diagnostic Assessment Laboratory investigations showed a hemoglobin level of 12 g/dL, which is mildly low. The total leukocyte count was 7.6 $\times 10^3/\mu L$, within normal limits, and platelet count was 278 $\times 10^3/\mu L$, which is also within the normal range. Other red cell indices including MCV, MCH, and MCHC were within reference limits. The coagulation profile showed a prothrombin time of 13 seconds, which is normal. APTT was prolonged at 40 seconds (reference range: 27–34 seconds), and the INR was 1.2, which is slightly elevated but acceptable for surgery. Biochemical analysis revealed normal serum urea at 18 mg/dL, creatinine at 0.5 mg/dL, and a random blood glucose level of 65 mg/dL. Liver function tests showed ALT of 18 U/L and total bilirubin of 0.4 mg/dL, both within normal limits. Serology tests showed non-reactive results for HBsAg and anti-HCV. Echinococcus IgG was positive, indicating hydatid disease. Ultrasound of the right thigh (dated 07-05-2025) revealed a well-defined cystic lesion in the subcutaneous tissue of the anterior right thigh, containing multiple

internal cysts likely representing daughter cysts[9]. Fluid within the cyst showed internal echoes and folded membranes suggestive of a hydatid cyst. There was no evidence of extension into adjacent muscles or bone, and no internal vascularity was seen on Doppler study. The overall impression was highly suggestive of a subcutaneous hydatid cyst. Gross examination of the excised tissue revealed a specimen measuring 13.4 × 6.8 cm containing membranous, thin-walled material with yellowish nodules. Microscopy showed the presence of a laminated chitinous cyst wall surrounded by granulomatous inflammation rich in lymphocytes, plasma cells, and eosinophils, along with a foreign body giant cell reaction. The final diagnosis confirmed the presence of a hydatid cyst.

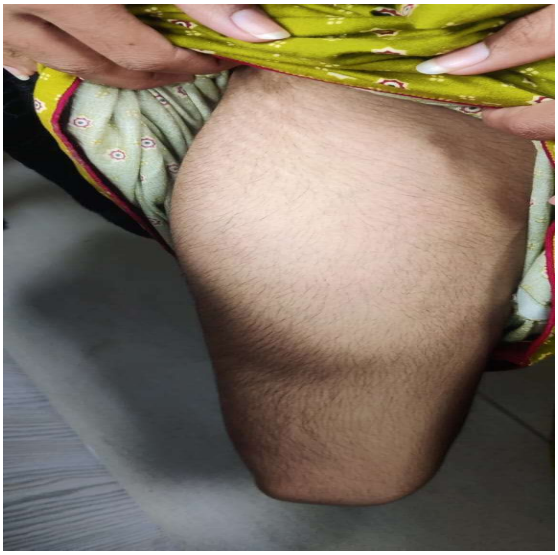


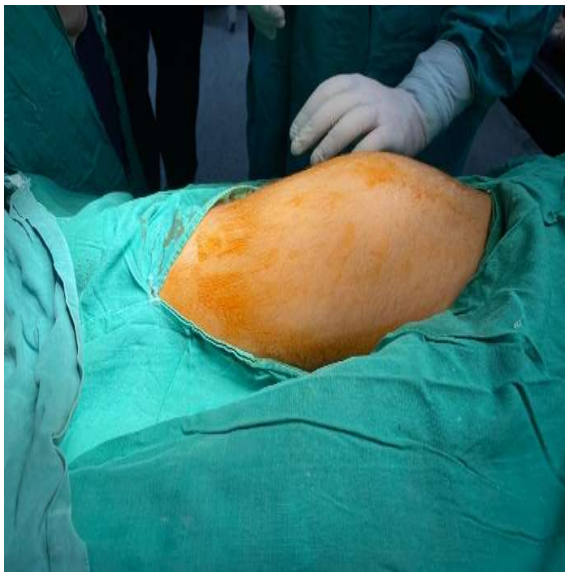
Figure 1: Showing a multiloculated cystic lesion in the subcutaneous tissue of the right thigh, with internal daughter cysts suggestive of a hydatid cyst.

The patient was admitted on 05-May-2025 for planned surgical management. Routine coagulation profile, and serology were conducted. The diagnosis of hydatid cyst was confirmed by Echinococcus IgG positivity and characteristic ultrasound findings. The patient was kept nil per os (NPO) for six hours prior to surgery. Prophylactic antibiotics and ntravenous fluids were initiated preoperatively.

The surgery was performed on 10-May-2025. The procedure involved excision of a subcutaneous hydatid cyst and was conducted under general anesthesia by Dr. Hamza Hafeez with assistance from Dr. Ahmed Altaf and Dr. Laila. Intraoperatively, a multiloculated, tense cystic lesion measuring 12× 8 cm was identified in the subcutaneous fat of the anteromedial right thigh. It was not adherent to the surrounding muscle or fascia. A vertical incision was made over the anteromedial aspect of the right thigh. The cyst was carefully dissected and completely mobilized without rupture, thus minimizing the risk of dissemination[10].

The cavity was irrigated with normal saline to remove any residual contents, and hemostasis was secured. A Radiac drain was placed to manage postoperative fluid accumulation, and the wound was closed in layers with a crepe bandage applied. Postoperative monitoring included regular inspection of vital signs, drain output, and the wound site. Intravenous fluids administered were Ringer's Lactate and Dextrose Normal Saline. The patient received intravenous Ceftriaxone 1g twice daily, Metronidazole 400 mg three times daily, Phloren (for analgesia), and Nelbion (for nutritional support).

The Redivac drain was maintained and subsequently removed when output decreased to less than 20ml.To prevent recurrence of the hydatid disease, antiparasitic therapy was initiated postoperatively. g prescribed Albendazole (Zentel) 200t twice daily for 28 days[11]. She recovered well under standard observation protocols. Drain output decreased progressively, and there were no signs of local infection, hematoma, or allergic reaction. Pain was effectively managed with prescribed analgesics, and the wound remained clean and dry without signs of discharge or inflammation. The patient was discharged in stable condition upon completion of her inpatient treatment. At discharge, she was prescribed oral Albendazole 200 mg twice daily for 28 days, Voren (Diclofenac)50mg twice daily, Cap Zeph 20mg once daily, and Meloxicam twice daily.



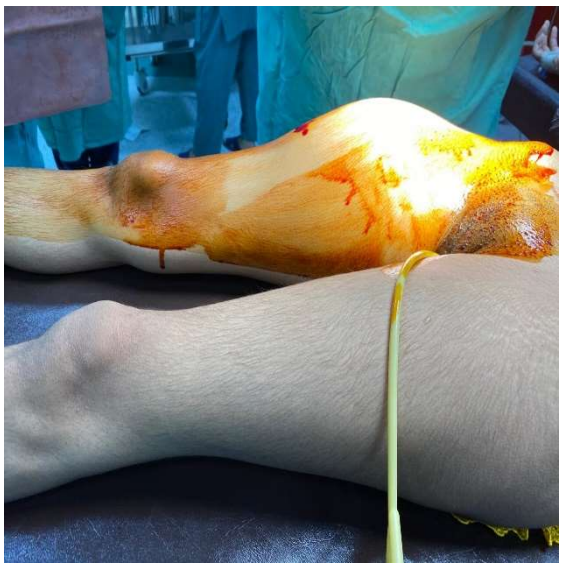


Figure 2: Pre operative images of the surgery.

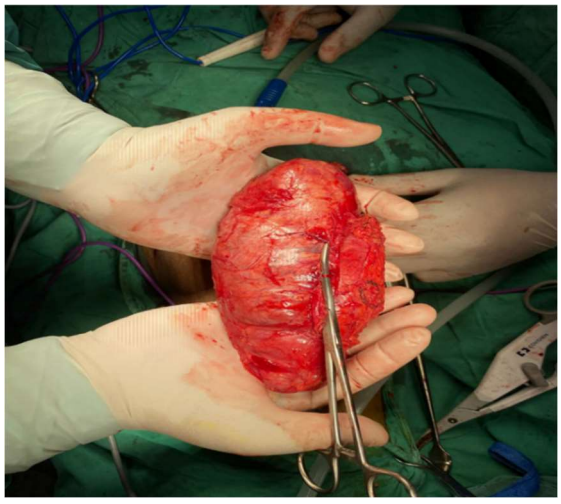


Figure 3: Per operative images of the surgery.

The patient was instructed to monitor the surgical site for signs of recurrence or infection, return for suture removal and wound inspection, and complete the full course of antiparasitic therapy. Long-Term Outcome At follow-up, the wound had healed well with no signs of recurrence or fluid accumulation. The patient remained asymptomatic, resumed normal activity, and reported no adverse effects from Albendazole therapy. No further imaging or serological signs of relapse were noted.

DISCUSSION

Hydatid disease (echinococcosis) is a parasitic infestation caused primarily by *Echinococcus granulosus*[6,12]. While the liver and lungs are the most common sites of cyst formation due to their role as first-line filters for hematogenous dissemination, subcutaneous hydatid cysts represent an exceptionally rare manifestation, occurring in less than 2% of all cases. These cases pose diagnostic challenges because they often mimic benign soft tissue tumors, abscesses, lipomas, or sebaceous cysts.

The present case is noteworthy due to the cyst's isolated location in the subcutaneous tissue of the right thigh, without hepatic or pulmonary involvement. The long-standing duration of 7 years, absence of systemic symptoms, and stable presentation without infection or rupture make this an unusual and educational case. The pathogenesis in such atypical cases is believed to involve lymphatic or hematogenous spread of the parasite bypassing the liver and lungs.

Diagnosis of subcutaneous hydatid cysts typically requires a high index of suspicion, especially in endemic regions[13]. Ultrasonography remains the initial imaging modality of choice, revealing the characteristic multiloculated, cystic appearance with internal daughter cysts and membrane detachment — often referred to as the "water lily sign"[14]. In this case, imaging was supplemented by positive Echinococcus IgG serology, further reinforcing the presumptive diagnosis. Surgical excision is the mainstay of treatment for hydatid cysts in soft tissue[15]. The aim is

complete removal of the cyst without rupture, as spillage can lead to recurrence, dissemination, or even anaphylactic shock[16]. Intraoperative use of sporicidal agents or copious irrigation with saline is standard to prevent secondary implantation. In our case, successful en bloc excision was achieved, and the cavity was thoroughly irrigated with normal saline. Histopathological findings confirmed the diagnosis, revealing laminated chitinous walls and granulomatous inflammation with giant cell reaction. Postoperative Albendazole therapy plays a critical role in reducing recurrence risk by sterilizing any microscopic residual parasitic elements[17]. The patient was prescribed a 28-day course, which she completed with excellent compliance and no adverse effects. This case highlights the importance of considering hydatid disease in the differential diagnosis of long-standing soft tissue swellings, particularly in endemic areas. It also underscores the necessity of careful surgical technique and the value of a multimodal treatment approach combining surgery with antiparasitic medication[18]. The patient describes feeling as "I had been living with this swelling in my thigh for many years and thought it was something harmless. It didn't cause much pain, so I ignored it. But when it kept growing, I became worried. I'm grateful to the doctors who took my condition seriously and explained everything clearly. The surgery went well, and I feel much better now. I'm also glad I don't have to worry about it anymore. I've learned that even if something doesn't hurt, it can still be dangerous, and I should never delay getting medical advice". Patient testimony (translated and documented with permission)

SOURCE OF FUNDING

None

CONFLICT OF INTEREST

Written informed consent was obtained from the patient for the publication of this case report and any accompanying images. A copy of the written consent is available for review upon request. The patient was assured of confidentiality, and all identifying information has been anonymized to protect privacy

AUTHOR'S CONTRIBUTIONS

MHH: Concept, Data Collection, Article Writing
MBY: Concept, Data Collection
LTQ: Technical Support, Critical Approval
HFS: Data Analysis, Critical Approval
MAR: Abstract, Introduction
HAF: Case Description

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