



A Case Report of a Hydatid Cyst on the Right Thigh in a 9-Year-Old Girl: A Difficult Diagnosis

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Abstract

Background: Hydatid disease is a parasitic infection that occurs primarily in Mediterranean countries. Skeletal and muscular involvement is a rare feature of hydatid disease, making the diagnosis of this condition difficult, especially in children.

Case presentation: In this case report, a hydatid cyst in the medial compartment of the right thigh was presented in a 9-year-old girl who referred to the emergency department with a bump and pain in the area.

Conclusion: It is important to pay attention to the rare localization of hydatid cysts in endemic areas, particularly in children.

Keywords: Case report, Children, Hydatid cyst, Rare sites

1. Background

Hydatid disease is a parasitic infection usually caused by *Echinococcus granulosus*; however, other species, such as *Echinococcus multilocularis* and *Oligarthrus* can also cause disease. The definitive hosts of this parasite are animals, including dogs, wolves, and foxes, and the intermediate hosts are sheep, goats, cattle, horses, camels, and humans. The intermediate hosts become infected by the ingestion of contaminated meat or feces of the definitive hosts (1, 2).

This disease is a serious health problem in Mediterranean countries, the Middle East, Africa, Asia, South America, and Australia (where livestock production is widespread). Due to travel between countries and tourism, the disease can naturally occur anywhere in the world (3).

The liver (68.8-80%) and lungs (10-22.4%) are the two most commonly affected organs in humans (3,4). The liver and lungs are affected in approximately 90% of all cases of hydatid cysts (5). Other rare sites include the spleen, peritoneum, skeleton, kidney, brain, myocardium, and even subcutaneous tissue (4).

Soft tissue hydatid cyst is very rare. The percentage of muscle involvement is about 0.7-0.9%, even in endemic areas (6). Factors such as low oxygen content in muscles and high lactic acid content inhibit the growth of this parasite (7).

In this article, we reported an atypical hydatid infestation in a child, which is a difficult diagnosis for any physician, especially in this age group.

2. Case presentation

An Iranian 9-year-old girl living in a rural area referred to the emergency department complaining of gradual swelling and severe pain in her right thigh for the past 3 days. The patient did not recall any past trauma and had no complaints in this region.

On examination, vital signs were stable with good general conditions. The lower limbs showed a soft mass (10 cm to 10 cm) in the medial and proximal part of the right thigh with moderate to severe tenderness on palpation. There was no evidence of acute inflammation of the overlying skin, such as warmth and erythema. Fever and chills were not mentioned by the patient. No leukocytosis was noted on laboratory testing. The results of other examinations were normal. Ultrasonography revealed a cyst of approximately 60×70×80 mm in size with a suspected hematoma or abscess. Anterior-posterior and lateral radiographs of the thigh were also obtained, which revealed no evidence of bone involvement. Based on the results of the imaging and the patient's symptoms, she was transferred to the operating room, where exploration revealed a hydatid cyst (Figure 1). After complete resection of the cyst, the site was washed with a scolicidal agent. After surgery, abdominal and thoracic computed tomography (CT) scans were requested, which also revealed multiple hepatic hydatid cysts (Figure 2). There was no pulmonary lesion. The brain CT scan was normal. Anti-hydatid antibodies (immunoglobulin G) were positive on retrograde evaluation (22 with an upper limit of



Figure 1. Evidence of hydatid cyst after exploration in the operation room

11). The patient underwent elective resection of the hepatic hydatid cysts after being prescribed albendazole for 2 weeks, which continued for 6 months according to a consult with an infectious physician.

What was interesting about the case was that the hydatid disease occurred at multiple sites in a little girl who had no contact with animals.

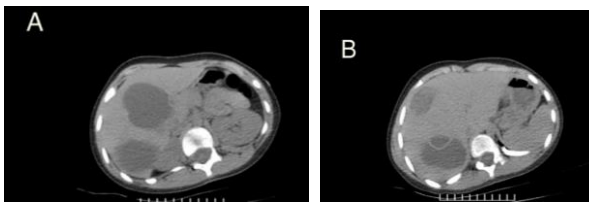


Figure 2. Multiple hydatid cysts in the liver

3. Discussion

The most common cause of hydatid cysts is a tapeworm called *E. granulosus*, which although can be found in all organs, including the bone, brain, eye, heart, kidney, and spleen, primarily affects the liver and lungs because of the parasite's life cycle (8).

The liver is the first filter in the venous flow path of the hepatic portal. Numerous larvae are settled there and the cyst structure is formed. The larvae reach the lungs after penetrating the walls of the liver capillaries. In some patients, the larvae can enter the systemic circulation through the liver and lungs via the capillary system and settle in every tissue and organ of the body. The larvae may also spread through the mesenteric lymphatic vessels or migrate through the intestinal wall and settle in various tissues and organs of the abdomen and even the pelvis (9-11). Involvement of unusual sites may challenge the diagnosis (12).

The appearance of the disease depends on the location and size of the cyst. Clinical manifestations range from asymptomatic to a palpable mass (13). Sometimes hydatid cysts can exert pressure on surrounding structures, such as nerves, and cause

peripheral neuropathy (14, 15). In our patient, no symptoms were observed except for pain in the upper thigh and a palpable mass in the medial compartment of the right thigh.

A positive history of animal contact, a complete physical examination, and imaging techniques, such as ultrasound, CT scan, and magnetic resonance imaging, are helpful in making the diagnosis (8).

Landolsi et al. reported a hydatid cyst that showed a mass on the right thigh (16). Similarly, Hekmatnia et al. reported a case of a primary subcutaneous hydatid cyst in the proximal thigh (17). In a report by Salih Landolsi et al., a hydatid cyst with a mass on the left thigh was described (18).

Currently, the most effective treatment for hydatid cysts in soft tissues is surgery. The main purpose of surgery is to prevent complications, such as pressure on surrounding structures, infection, or rupture of the cyst. A complete cystectomy with the surrounding adventitial wall allows us to remove all parasitic elements without leaking the contents of the cyst. This is the main treatment for hydatid cysts in soft tissues, including the axilla and groin. Soft tissue cysts can easily rupture; therefore, cyst rupture should be avoided to prevent recurrence (4, 8, 19, 20).

Regardless of the location of the hydatid cyst, preventive albendazole 10 mg/kg/day for children (<60 kg) and 400 mg for adults (>60 kg) can be administered twice daily for at least 2 weeks to reduce the size of the cyst (4, 20, 21).

Postoperative drug therapy is not required in patients whose cysts have been completely removed. In case of cyst rupture or multiple cysts, treatment should be continued for 2 months after surgery (21, 22).

4. Conclusion

Hydatid cyst is one of the most important infectious diseases and a major health problem in numerous developing countries. This case demonstrates that in areas where hydatid cysts are endemic, a hydatid cyst should always be considered in the differential diagnosis of a cystic mass at any anatomic site.

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Footnotes

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