



Musculoskeletal Hydatid Cyst: About 6 Cases

Zaizi A*, Badaoui R, Oussama A, Boukhriess J, Chafry B, Benchebba D and Boussouga M

Department of Orthopedic Surgery and Traumatology II, Mohamed V Military Hospital, Mohamed V University, Morocco

Abstract

Human hydatid cyst is a parasitosis caused by *Echinococcus granulosus*, Humans are infested by consuming food and water contaminated with the eggs of the *Echinococcus granulosus*, the infestation is usually located in the liver and lungs, nevertheless, musculoskeletal location can be possible but very rare. Clinically, hydatid cyst is often asymptomatic until developing of swelling and anesthetic masse. Preoperative diagnosis is very important and easily done radiologically by ultrasound or MRI that remains exploration of choice to precise diagnosis and hydatid cyst stage. Treatment is essentially medico-surgical allowing complete masse excision and cure of cystic residuals.

Keywords: Cyst; *Echinococcus granulosus*; Hydatid, Parasitic

Introduction

Hydatid cyst is a cosmopolitan parasitic infestation which constitutes a public health problem. The Mediterranean basin is an important endemic area as in our country (Morocco). Affected organs of predilection are liver and lungs, but musculoskeletal system location is very rare, and patients complain of soft tissue mass in the affected muscle. Ultrasound and MRI imaging plays an important role in the diagnosis. Furthermore, surgical excision associated with anthelmintics is a good therapeutic choice to this lesion.

Through this work, we present a retrospective study of primitive musculoskeletal hydatid cysts observed in our orthopedic department between 2018 and 2022, with an average follow-up of 1 year (6 months to 4 years).

The objective of this study is to review pathogenesis, discuss the diagnosis and treatment options.

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*Correspondence:

Abderrahim Zaizi, Department of Orthopedic Surgery and Traumatology II, Mohamed V Military Hospital, Mohamed V University, Rabat 10100, Morocco, Tel: +212-671700824; E-mail: Dr.abderra@gmail.com

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Material and Methods

We present a retrospective study concerning 6 cases of primitive musculoskeletal hydatid cysts observed in our orthopedic department between 2018 and 2022. There was 4 gluteal and 2 thigh locations (one anterior and the other posterior) with women predominance, 5 women cases against one man. There was a notion of contact with dogs in a one patient. The average age of our patients was 41.5 years. The clinical picture was dominated by painless muscle swelling of a non-inflammatory appearance, gradually increasing in volume, and evolving slowly in a context of conservation of the general state, one case had shown signs of compression of the sciatic nerve made up of pain and paresthesia of the lower limb, one case with cutaneous fistulization had an iliac bone localization that appeared as a lytic lesion in pelvic radiographs and CT-scan (Figure 1).

Hydatid serology was positive in just 2 cases while ultrasound and MRI imaging had confirmed the diagnosis by showing the typical multivesicular appearance in all muscular hydatidosis (Figure 2). Treatment was essentially surgical; it is the only radical treatment allowing to confirm the diagnosis and to ensure a complete disease cure (Figure 3). It was supplemented by a postoperative antiparasitic medical treatment for 3 months and of long duration for the bone localization.

Results

We performed a careful peri cystectomy and removal of soft tissue masses without rupture to prevent the spread of infection to healthy tissue, then intense washing with hydrogen peroxide or hypertonic sodium chloride and suction drainage of the residual cavity by two Redon drains. Regarding the iliac hydatid cyst, we performed bone curettage with drainage and long-term antiparasitic treatment (12 months).

A median follow-up period was one year (6 months to 4 years). Marked by periodic physical exams and ultrasound exploration done at 6 months and one year after surgery with normal findings.

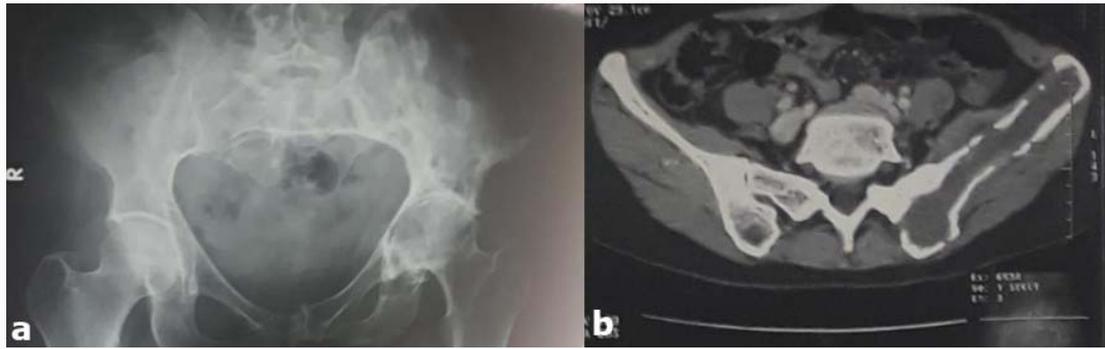


Figure 1: Left iliac bone hydatid cyst (a: X-rays, b: CT scan).

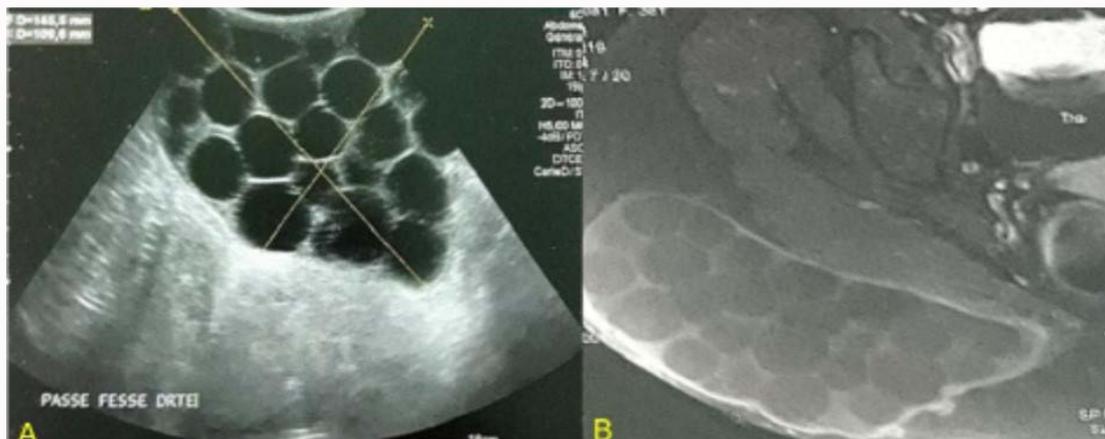


Figure 2: Ultrasound view and MRI in axial section of the T2 gluteal region showing a type III hydatid cyst.

Results were satisfactory in 83% concerning muscular cases (5 cases) with decreasing in discomfort and swelling. While, results involving bone location were mediocre (1 case) given the inoperability of iliac bone lesion in zone I and II, according to Enneking.

Discussion

Hydatidosis is a parasitosis caused by *Echinococcus granulosus*; it is a public health problem in the Mediterranean region [1]. Liver and lungs are most frequently infested organs by hydatid cysts. However, musculoskeletal location is very rare where muscle involvement represents only 1% to 4% of all presentation, essentially at the level of lower limbs origin, probably due to the richest vascularization like presentation of our five patients with muscular hydatid disease, while bone site is sporadic and is generally expressed at a late stage [2,3].

There are two main *Echinococcus* species; *Echinococcus granulosus*, most frequent form where the dog is the main host and *Echinococcus alveolaris/multilocularis*, less common but more invasive where the fox is the main host. Intermediate hosts are most commonly sheep, humans are accidental hosts essentially in liver and lungs, infestation happen by ingesting food or water contaminated with *Echinococcus* eggs or after direct contact with animal hosts. The cysts usually have three components which are the pericyst, composed of inflammatory tissue of host origin then the exocyst and the endocyst containing scolices (larval stage of the parasite) and the laminated membrane [4,5].

Hydatid cyst is frequent in patient between third and fifth decades and women are most affected essentially in rural zones as in



Figure 3: Postoperative view of a daughter cyst of Type III hydatid cyst.

our cases. Clinical features of musculoskeletal hydatidosis are often asymptomatic in the initial phases being summarized in a painless muscular tumefaction of non-inflammatory appearance gradually increasing in volume becoming anesthetic and evolving slowly in a context of preservation of the general state as is the case in all our patients. Masse can be compressive towards the neurovascular structures; also, soft tissue tumors are the main differential diagnosis [6,7].

Ultrasound is a low-cost and reliable diagnostic tool that can be used in first line, it detects hydatid cyst and classified it according to Gharbi' ultrasound classification that distinguish five types:

- Type 1: Homogeneously hypoechogenic cystic thin-walled lesion.
- Type 2: Septated cystic lesion.

- Type 3: Cystic lesion with daughter lesions.
- Type 4: Pseudo-tumor lesion.
- Type 5: Calcified or partially calcified lesion (inactive cyst) [8].

MRI imaging is the gold standard to explore hydatid cysts and any other soft tissues masses avoiding a biopsy which can trigger fatal anaphylactic shock and made it possible to better specify the seat of the cyst and allows staging the lesion. A low-intensity rim can be seen on both T1 and T2-weighted images, but is more prominent on T2-weighted ones; this rim is less developed in muscle. Moreover, exclusion of the presence of other cysts in other parts of the body is important, by general physical exams and more explorations such as chest X-ray, abdominal ultrasound or CT scan.

Surgical treatment consists of two options; open approach and total mass excision without perforation of the membranes or PAIR procedure based on puncture, aspiration, injection of protoscolicidal agent and re-aspiration [9].

Hydatid cysts are associated with high recurrence rates, essentially in bone. Marginal resection of hydatidosis combined with pre- and post-operative anthelmintic medication provide better results and low recurrence rates as observed in our patients [10].

Conclusion

Musculoskeletal hydatidosis is a rare condition, it should always be considered in subjects living in a country with a high endemic level. Anthelmintics treatment after surgery is necessary to achieve complete healing. However, prophylaxis is the best means to combat this parasitosis.

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