

Localization of Hydatid Cysts in Muscle at the Level of the Limbs: About Seven Cases

Elmehdi Elalouani^{1*}, Mustapha Boussouga¹, Salah Berrada¹

¹Department of Traumatology Orthopedics I. Military Instruction Hospital Mohammed V

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*Corresponding author: Elmehdi Elalouani

Department of Traumatology Orthopedics I. Military Instruction Hospital Mohammed V

Abstract

Original Research Article

Echinococcosis anthroponosis or hydatidosis is due to larva of a tapeworm: *Echinococcus granulosus* developed in humans and some animals and transmitted by the dog. A rare localization of hydatid disease is within soft parts. Herein we present a retrospective study of 7 cases with isolated and primary hydatid cyst in peripheral muscles. The preferred population was rural man (85.7%) with mean age of 43.4%, how was consulted for swelling and a very slowly growing mass, and it has grown last 3 months; without any other physical finding at his systemic examination. Thigh is reported to be involved 6 out of 7, 4 at the lodge adductors. Imaging tests and immunological reactions are very helpful in making preoperative diagnosis but histology confirmed that. All patients underwent a surgical excision supplemented by anthelmintics chemotherapy.

Keywords: Hydatid Cyst, Muscle, Ultrasound.

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INTRODUCTION

The muscular localization of the hydatid disease is very uncommon, even in endemic countries [1, 2]. This zoonotic infection most commonly caused by the larvae of *Echinococcus granulosus* and the larvae of *Echinococcus multilocularis*, *Echinococcus vogeli*, and *Echinococcus oligarthrus* [3].

Echinococcus still remains a serious health problem in our country. The diagnostic process must be simple regardless means of imaging tests made available to the medical team.

This work study the epidemiological, diagnostic and therapeutic aspects of muscular hydatidosis; ultrasound is very helpful in making preoperative diagnosis of this disease; at the same time we detail methods to the diagnostic, prognostic and therapeutic recommendations, so as to avoid failure and locale recurrences.

MATERIAL AND METHODS

Herein we present seven cases of isolated hydatid cysts in the peripheral muscles, collected between January 2002 and December 2012 observed in Traumatology-orthopedic departments: UNIVERSITY HOSPITAL CENTER IBN SINA (Traumatology-

Orthopedic departments at the Military Instruction Hospital Mohammed V and the Department of Traumatology Orthopedics of the IBN SINA hospital in Rabat Morocco.)

There are six men and one woman. The average age is 43.4 years with extremes of 26 to 61 years. Residence of the patients and their origins from rural areas were noted five times (71.4%); contact with dogs was present six times.

Clinically, the primary reason for consultation was a very slowly growing mass with swelling evolving since a average period of 13.8 months (extremes 4 to 24 months), without changes in health status (figure 1).

In three cases the mass was painful, without inflammatory signs, or lymphadenopathy. Its topography is summarized in (table I).

The hydatid cyst was located four times in left lower limb and once at right. It was detected by systematic ultrasound investigation, and was classified according to the Gharbi classification [4], in Type III for all the patients (figure 2).

Magnetic resonance imaging (MRI) was performed on five patients, that revealed multilobulated and heterogeneous large mass with many daughter cyst

in the muscular compartment suggesting a hydatid cystic, a low-intensity on T1 and a high-intensity signal on T2-weighted images (figure 3a and 3b).

Biologically, hypereosinophilia was positive in only 2 cases, and hydatid serology (indirect immunofluorescence ELISA) was positive 3 times out of 4.

The remaining workup including chest radiograph and abdominal echography, were done to identify possible lung or liver cysts. No such cysts were found.

The surgery approach used was directly performed on the swelling. With wide resection in block of the lesion out from the adjacent muscle which was possible 5 times (71.4%), while the pericystotomy was subtotal in 2 cases because pericyst was densely adherent to the surrounding muscle.

The ruptur of the cyst during the surgery was noted twice, without anaphylactic shock. The wound was irrigated systematically with hydrogen peroxide (Figure 4).

RESULTS

On the pathological anatomy level, macroscopic appearance of hydatidosis was typical at the opening of the cystic tumor, which was confirmed by histopathologic examination.

The parasite muscles are summarized in (Table II), in all cases, hydatid cyst was multivesicular with necrosis in once (Figure 5).

Mean following-up was 40 months (extremes of 8 months to 10 years), and only one recurrence was objected by the clinical examination after 10 years by re-infestation. Serology decreased in the three patients how has benefited of it.

Table I: lesion localization

Topography	Number of cases
Adductor muscle of medial thigh	5
Posterior compartment of the thigh	1
Posterior Arm compartment	1

Table II: muscles infested according to the number of cases

Muscles infested	Number of cases
Adductors femoris	4
Triceps brachii	1
Hamstring muscles	1
Vastus medialis in the thigh	1



Figure 1: Painless mass of inner region of left thigh.

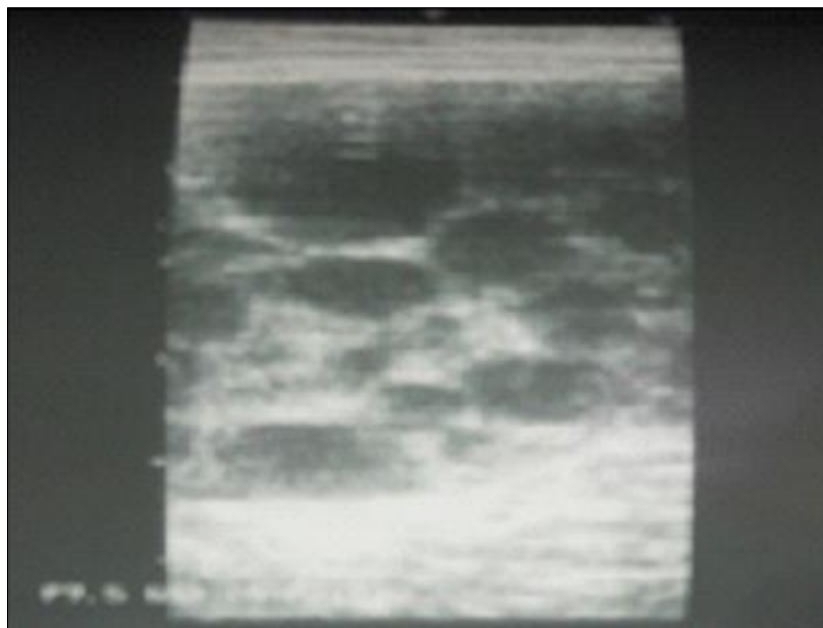


Figure 2: Cystic images suggestive of hydatid cyst.

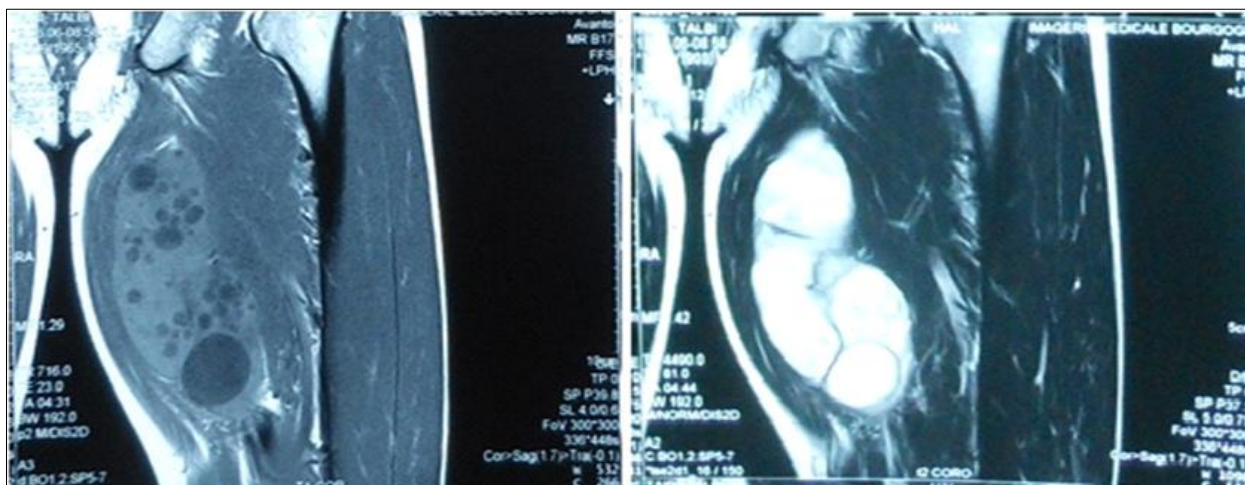


Figure 3a and 3b: multilobulated and heterogeneous large mass cystic with daughter vesicles compatible with hydatid cyst

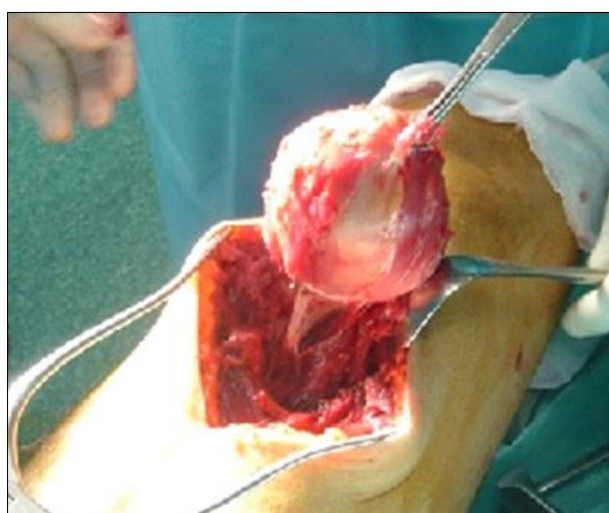


Figure 4: wide excision in block of the hydatid cyst out from adjacent muscle



Fig. 5: Multiple small fluid filled daughter cysts, membranes with pus flakes

DISCUSSION

Hydatid cyst in muscle is less frequently seen, despite the diffusion of high-performance imaging techniques. Its frequency is currently estimated between 1 and 5.4% of all hydatid locations [5-7]. That because older pathology texts and review articles included hem with subcutaneous cellular tissue cysts [8, 9].

Musculoskeletal involvement is a rare manifestation of hydatid disease due to the high lactic acid concentration in skeletal muscle and to mechanical factors such as contractile activity [10].

The liver and lungs act as natural mechanical filters for oncospheres following penetration of intestinal mucosa, thus making it quite difficult for them to reach musculoskeletal tissue.

A few embryos arrive in the great circulation, then they reached throughout the body through the portal or lymphatic routes.

There are other muscular rare sites reported to be involved by hydatid cyst, like neck, trunk and limbs, especially those of the lower limb, as we observed in our patients.

In our series, thigh muscles were involved 5 times out of 7 (71.4%), including adductor muscles in 4 times (57.1%). This selectivity would be related to the importance of blood flow. Otherwise, muscular hydatidosis is usually isolated and primary [10], It is not associated with other hydatid sites only in 8% of cases.

Clinically, symptomatology of muscular hydatidosis, is not specific. It is most often a very slowly evolving soft-tissue tumor, the important differential diagnosis also evoked are a cold abscess, myositis, or calcified hematoma traumatic [11].

Sometimes, when the cyst is cracked or superinfected, the clinical signs are apparent, which is

frequently confused with a hot abscess or a malignant tumor of the soft parts.

Rarely, when the symptoms are apparent, its due to compression of adjacent structures by enlarging cysts, especially in the hydatidosis of psoas major muscle, how may mimic leading retroperitoneal tumors proper [12].

In preoperative, the diagnosis must be carried imperatively in front of those arguments: endemic countries, rural areas and direct contact with the dogs. This makes it possible to avoid both puncture and biopsy of the cyst and to take measures to protect the surgical field by the scolicide solutions from possible local spillage with risk of anaphylactic shock.

Therein, Ultrasound is very helpful in making preoperative diagnosis, in this series, it enabled to preoperative diagnose in all cases, it must be a first-line examination, generally it is sufficient and reliable in 95% of cases [13].

More expensive Imaging modalities examination after ultrasound, the CT examination, should be reserved for doubtful cases. MRI is the best exam in order to appreciate different stages of the disease, it allows a better locoregional anatomical study and a good analysis of the cystic wall, especially in rupture cases. It's characteristic by a low-intensity rim on all sequences but more evident in T2 weighted images.

Furthermore, arteriography has little interest, its study hydatid cyst anatomical relations with the vascular axes. However, it may be misleading, showing signs of malignancy in case of peri-cyst inflammation [12].

Moreover, biological diagnosis of muscular hydatidosis is difficult [14]. Hypereosinophilia is neither constant nor specific, and immunological reactions are often negative when the cyst is not cracked or altered [11]. Nevertheless, they constitute a complement of

clinical and imaging diagnosis and especially in the monitoring of the treatment [13].

The persistence or a reascension of high titre of antibodies observed between 6 months to 1 year after an intervention are in favour of secondary echinococcosis [14].

However, muscular hydatidosis remains surgical. Surgery is the most effective treatment, contrariwise the conservative surgical treatment still presents a significant morbidity.

In the last years, the development of percutaneous interventional radiology such as aspiration-injection-re-aspiration (PAIR) and percutaneous drainage without re-aspiration, which have improved mortality and morbidity of hydatid cysts. To achieve a complete curative treatment and to avoid reinfestation, an additional chemotherapy is necessary.

The real treatment is prophylaxis, it must act at all epidemiological chain levels [15].

CONCLUSION

Muscular hydatidosis is a rare and benign disease only if the peroperative diagnosis is made using ultrasound investigations, which avoids certain pitfalls such as biopsy or peroperative rupture of the cyst.

Even with the development of interventional radiology; Total periectomy remains the most effective treatment.

However, parasite is relatively stable in domestic life cycle and sensitive to control measures [15], it remains accessible to individual and general prophylaxis, which is the real treatment.

Conflicts of Interest: "Authors declared they have no conflicts of interest".

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