

## Simultaneous Localization of a Hydatid Cyst in the Gluteal and Psoas Muscles: A Case Report and Review of the Literature

Aziz Benakrout<sup>1\*</sup>, Mohamed Bouzroud<sup>2</sup>, Youssef Jalal<sup>2</sup>, Said Khallikane<sup>1</sup>, Ismail Aissa<sup>1</sup>, Abdelouahed Baite<sup>1</sup>

<sup>1</sup>Department of Anesthesiology and Intensive Care, Military Hospital Mohammed V, Faculty of Medicine and Pharmacy of Rabat, Mohammed V University, Rabat, Morocco

<sup>2</sup>Department of General Surgery, Military Hospital Mohammed V, Rabat, Morocco

DOI: [10.36347/sasjm.2022.v08i07.013](https://doi.org/10.36347/sasjm.2022.v08i07.013)

| Received: 19.06.2022 | Accepted: 24.07.2022 | Published: 30.07.2022

\*Corresponding author: Aziz Benakrout

Department of Anesthesiology and Intensive Care, Military Hospital Mohammed V, Faculty of Medicine and Pharmacy of Rabat, Mohammed V University, Rabat, Morocco

### Abstract

### Case Report

The simultaneous double localization of hydatid cysts in the psoas and gluteal muscles is exceptional. The purpose of this case report is to describe a hydatid cyst located in the left gluteal and psoas muscle in a 28-year-old patient. Ultrasound, CT scan and a positive hydatid serology contributed to the preoperative diagnosis. The patient was operated in two stages. The evolution was good without recurrence after the surgical treatment.

**Keywords:** Hydatid cyst, gluteal muscles, psoas muscles, surgical treatment.

**Copyright © 2022 The Author(s):** This is an open-access article distributed under the terms of the Creative Commons Attribution 4.0 International License (CC BY-NC 4.0) which permits unrestricted use, distribution, and reproduction in any medium for non-commercial use provided the original author and source are credited.

## INTRODUCTION

Hydatid cyst or hydatidosis is an anthrozoosis due to the development in humans of the larval form of the taenia *Echinococcus granulosus*. It is endemic and constitutes a real public health problem in Morocco. Isolated muscle localization is an unusual entity even in endemic countries. Its frequency is estimated at 2 to 3% of all localizations. The psoas and gluteal muscles remain exceptional locations. In the world literature, a few clinical cases of hydatid cyst of the psoas and gluteal muscles have been described. We report a new observation of a simultaneous double localization of hydatid cyst in the psoas and gluteal muscles.

## CASE REPORT

It is about a 28 years old patient, operated 02 years ago for hepatic hydatid cyst, who presented a pain in the left inguinal region with heaviness of the left lower limb, and swelling at the level of the left buttock evolving since one year, the clinical examination

objectified: a pain when flexing the left thigh on the pelvis suggesting a psoitis and a palpable mass in the left gluteal region, without inflammatory signs in front of it, the abdomino-pelvic ultrasound and soft parts objectified an aspect of hydatid cyst in the left psoas muscle and another cyst in the multi-partitioned gluteal muscle, The abdomino-pelvic CT scan confirmed the diagnosis of hydatid cyst (Figure 1), hydatid serology was positive, biological parameters of infection were negative, the surgical indication was given, after pre-anesthetic consultation, The patient was admitted to the operating room after general anaesthesia associated with a rachi-morphine, the surgical procedure was performed in two stages, the first stage under dorsal decubitus, after intraoperative ultrasound identification of the hydatid cyst of the psoas, The patient was then placed in a prone position, after intraoperative ultrasound identification (Figure 2), the incision was made in front of the cyst and the cyst was resected (Figure 3). The postoperative course was simple and the clinical symptoms improved.

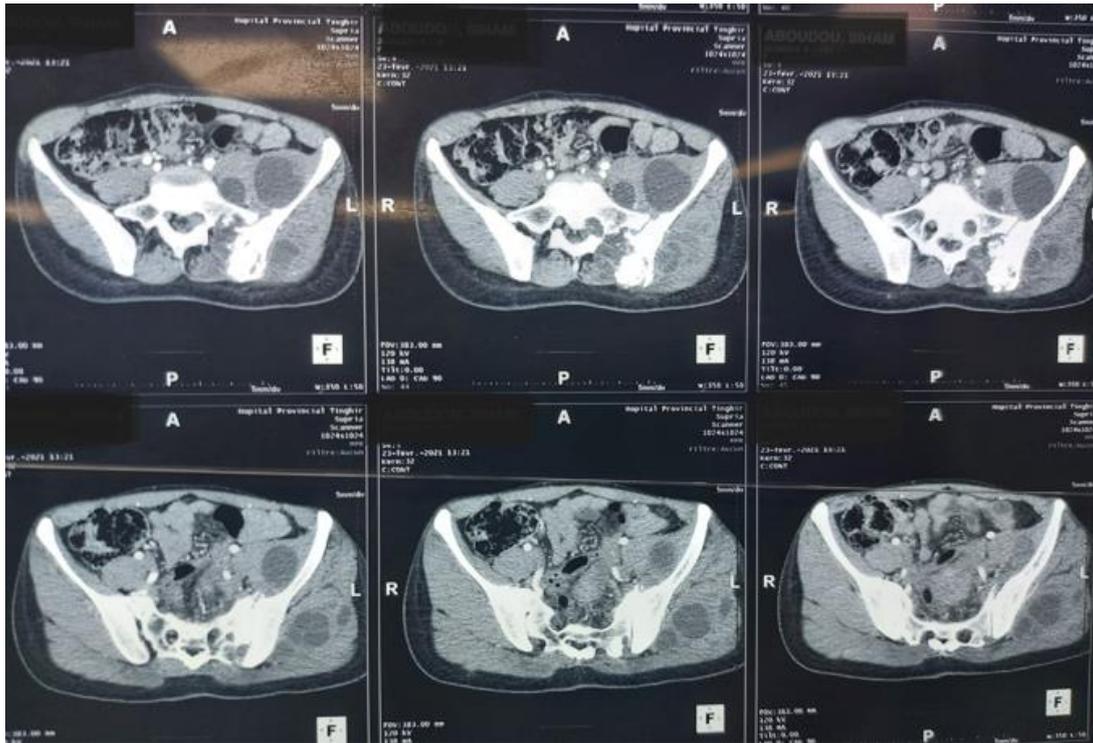


Figure 1: Scanographic image showing a double location of the hydatid cyst in the psoas muscle and the gluteus muscle

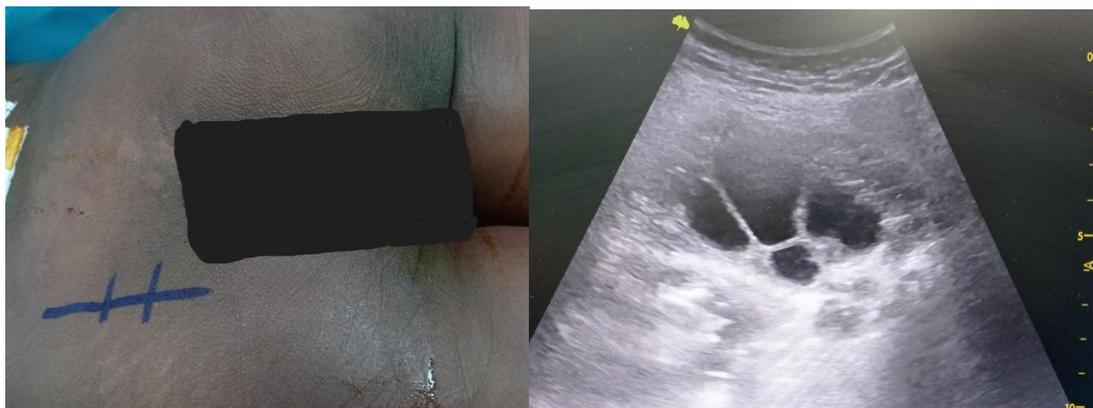


Figure 2 : Image showing intraoperative ultrasound identification of the hydatid cyst in the gluteal muscle



Figure 3: Resected hydatid cyst

## DISCUSSION

Hydatidosis is an anthroponosis due to the larval form of *Echinococcus granulosus*, in the adult state, the digestive tract of the dog constitutes the definitive host. The infestation of the dog is done by digestive way and would be secondary to the consumption of parasitized viscera, notably the liver and the lungs of the intermediate host: the sheep. The latter, constituting the main reservoir of the echinococcus tapeworm, is contaminated by grazing grass soiled by the dog's excrement containing the eggs of the parasite. Man is only an accidental intermediate host, he gets infected either directly by contact with the parasitized dog or indirectly by ingestion of soiled food. Humans constitute an epidemiological dead end [1].

All localizations of hydatidosis have been described, in 90% of cases it affects the liver and the lung. This distribution is explained by the blood dissemination of the parasite and the blood flow of the portal circulation. The eggs of the echinococcus tapeworm ingested by humans release the embryohexacanth in the intestine. The latter crosses the intestinal mucosa and enters the portal circulation. Its size and plasticity allow it to spread. The portal current carries this embryo to the first barrier, which is the liver, where it stops six times out of ten. Otherwise, via the suprahepatic veins, the parasite reaches the inferior vena cava, the right heart, and then the lung, which constitutes the second barrier, where it is retained three times out of ten. One time out of ten, the embryohexacanth crosses the two barriers, finds itself in the great circulation and can lodge in any place of the organism.

Soft tissue involvement is unusual, it is described in 0.5 to 4.7% of cases and mainly involves the skeletal muscles of the neck and buttocks, the dorsal muscles, and the roots of the lower limbs. This is due on the one hand to the degree of vascularization of the tissues and to the muscle contractions which would prevent the development of the larva and on the other hand to the richness in lactic acid of the muscle which would prevent the growth of the hydatid. Deep muscular localizations (psoas, diaphragm. . .) are also reported [2-4].

We did not find a similar case in the literature of simultaneous localization of hydatid cysts in the psoas and gluteal muscle, however isolated cases of hydatid cysts in the psoas and gluteal muscle have been reported.

Hydatidosis of the psoas muscle is an exceptional localization, it is observed in about 0.2 to 0.5 % of cases [5]. A retrospective study of 265 extra pulmonary hydatid cysts by S. Bellil *et al.* in Tunisia, showed only one case of hydatidosis of the psoas muscle, i.e. 0.4% of other locations [6]. Another retrospective study of 38 cases of rare and exceptional

localizations among 865 cases of hydatid cysts showed 8 cases of hydatidosis of the psoas muscle, i.e. 47.06% of all muscle localizations [7].

Localization in the psoas muscle is characterized by its clinical latency. Clinical diagnosis is difficult because of the lack of orientation elements [8, 9]. The symptomatology remains non-specific, variable and depends on the location and size of the cyst [10]. Often the pain or compressive signs that lead the patient to consult [11], generally the hydatid cyst of the psoas is revealed by an insidious pain located in the lumbar region or the iliac fossa or a sensation of heaviness and discomfort with usual movements [5, 12], the presence of a febrile abdominal mass is an unusual mode of revelation, which poses a real problem of preoperative diagnosis. Some cysts can be revealed by complications such as urinary compression (dysuria, pollakiuria, mictional burns, hydronephrosis, and even renal failure), nerve (crural nerve), and vascular compression [13]. Imaging is essential for the diagnosis and pre-treatment assessment. Ultrasound is an innocuous first-line examination with an estimated diagnostic reliability of 96%. The ultrasound appearance reproduces the stages of Gharbi's classification and reflects the evolutionary stage of the disease; in deep locations such as the psoas, a CT study is necessary. The CT scan allows an easy diagnosis with a more precise topographic assessment [14].

The gluteal localization is of poor symptomatology, consisting of a painless muscular swelling (gluteal mass) of non-inflammatory appearance which increases progressively in volume and evolves slowly in a context of conservation of the general state. The gluteal hydatid cyst may remain asymptomatic for a long time as it may compress the adjacent vascular and neural structures giving a painful picture. The cyst may also reach a large volume and have a mass effect on the neighboring organs, giving a clinical picture of functional discomfort or neuropathy due to compression [15]. Other complications to be feared are superinfection and fissuring of the cyst in the skin, with the emergence of daughter vesicles, which may give a picture of anaphylactic shock [16]. The differential diagnoses are other soft tissue swellings: abscess, synovial cyst or malignant tumor [4]. Imaging is the essential tool to avoid biopsy, which can trigger anaphylactic shock and is therefore totally proscribed. Ultrasound is the first-line examination. The typical appearance is a round hypoechoic image with a smooth wall. The multiplicity of vesicles gives a "honeycomb" image. The ultrasound classification of hydatid cysts, developed by a WHO expert committee, allows classification as active or inactive cysts, but it is only used in hepatic localizations [17]. Magnetic resonance imaging (MRI) remains the best examination for the diagnosis of muscle cysts by showing a multiloculated cystic image. It also allows to localize them with

precision. The CT scan remains useful in the assessment of extension [18].

The biological work-up brings a certain finesse to the diagnosis of hydatidosis, especially in case of diagnostic problems, and remains of major interest in the context of sero-epidemiological investigations and follow-up after treatment. Hyper eosinophilia is inconstant and is only of interest in the orientation of the diagnosis. Biology is essentially limited to hydatid serology. It is of great diagnostic value when it is positive. Its negativity does not eliminate the diagnosis of hydatid cyst, hence the need to compare the clinical, imaging and biological findings. To improve the sensitivity/specificity ratio, most authors prefer to combine 2 serological techniques, one quantitative: indirect hemagglutination, immunofluorescence, ELISA and the other qualitative: immunoelectrophoresis, electrosynthesis [9]. In addition to its role in the diagnostic confirmation, hydatid serology allows to follow the post-therapeutic evolution of the hydatid cyst, to formulate a prognosis and to detect early a secondary hydatidosis. Thus, any elevation in the six months following the operation is synonymous with recurrence or unnoticed hydatid localization. Qualitative and quantitative methods are difficult to interpret, but Western blot and immunoblot are more sensitive and specific [19].

In our clinical case the symptomatology was revealed by psoriasis and pain in the inguinal region with swelling in the buttock, the diagnosis was confirmed by abdomino-pelvic ultrasound and abdomino-pelvic CT scan.

Surgery, widely used in endemic countries, is still the best alternative in complicated forms. Medical treatment with albendazole is still used for inoperable patients or in case of massive recurrence as a complement to surgery. In recent years, hydatid cyst surgery has benefited from progress in the field of resuscitation and surgery in general, as well as from the contribution of new exploration techniques: intraoperative ultrasound [20]. Especially when dealing with noble and dangerous organs, it allows to avoid the evolution towards mechanical and infectious complications. The aim of the operation is not only the evacuation or removal of the cyst, but also the removal of the proligeral membrane that is glued to the inner surface of the cyst and the destruction of the daughter vesicles that are free inside the cystic cavity. The choice of the approach depends on: the site, volume of the mass and the relationship of this mass with the neighbouring organs, the association with other cystic localisations, the type of these cysts and the existence of possible complications [21]. Some authors prefer the extra peritoneal approach in order to avoid opening the peritoneal cavity and to minimize the risk of hydatid dissemination, secondary suppurations and postoperative occlusions [22]. The extra peritoneal iliac

approach remains the best route for total pericystectomy with a closed cyst in order to avoid locoregional seeding. The transperitoneal approach, which best controls the vascular pedicles and the ureters, should only be used in association with another intraperitoneal location. It is based on clinical examination, imaging and serology follow-up (every 3 months for 2 years) [23, 24].

## CONCLUSION

The simultaneous bi-location of the hydatid cyst in the psoas and the gluteal muscle remains a rare entity. The diagnosis is based essentially on ultrasound and CT scan, with biology providing additional elements. The best treatment is essentially based on the prevention of hydatidosis which unfortunately continues to be endemic in our country.

## REFERENCES

1. Mseddi, M., Mtaoumi, M., Dahmene, J., Siala, A., Moula, T., & ML, B. A. (2005). Hydatid cysts in muscles: eleven cases. *Revue de chirurgie orthopedique et reparatrice de l'appareil moteur*, 91(3), 267-271.
2. Soufi, M., Lahlou, M. K., Messrouri, R., Benamr, S., Essadel, A., Mdaghri, J., ... & Chad, B. (2010). Hydatid cyst of the psoas: a report of two cases. *Journal de Radiologie*, 91(12 Pt 1), 1292-1294.
3. Ait lahcen, A. G., Messoudi, A., Rafaoui, A., Rahmi, A., Messoudi, B., Garnaoui, H., Rafai, M., & Rahmi, M. (2017). Peripheral Muscular Hydatidosis: Diagnostic and Therapeutic Particulars. A Propos De 5 Cas Et Revue De La Littérature, *Rev Marocaine Chir Orthopedic Traumatol*, pp. 60-65.
4. Aït-Ammar, N., Prigent, G., Zehou, O., Le Mouel, S., Chader, H., & Botterel, F. (2016). Primary muscular hydatidosis: About 3 cases, *Press. Medicale*, 45(2), 258-261.
5. Feki, W., Ghazzi, S., Khiari, R., Ghorbel, J., Elarbi, H., Khouni, H., & Rais, N. B. (2008). Multiple unusual locations of hydatid cysts including bladder, psoas muscle and liver. *Parasitology International*, 57(1), 83-86.
6. Bellil, S., Limaiem, F., Bellil, K., Chelly, I., Mekni, A., Haouet, S., ... & Zitouna, M. (2009). Epidemiology of extrapulmonary hydatid cysts: 265 Tunisian cases. *Médecine et maladies infectieuses*, 39(5), 341-343.
7. Hilla, Y. (2019). Localisations Rares Et Exceptionnelles Du Kyste Hydatique : A Propos De 38 Cas Avec Revue De La Littérature, Université Mohammed V De Rabat, Faculté De Médecine Et De Pharmacie Rabat.
8. Joseph F. Baker, Darren F. Lui, Margaret Cavanagh, and Brain Hurson, J. Compressive Femoral Neuropathy Secondary To A Hydatid Cyst Of The Iliopsoas Muscle, *Revue Du Rhumatisme*, 77(2).

9. Benchekroun, A., Jira, H., Cheikhani, O. J., Kasmaoui, E. H., Zannoud, M., & Faik, M. (2001, January). Kyste hydatique du psoas. À propos d'un cas. In *Annales d'urologie* (Vol. 35, No. 2, pp. 108-110). Elsevier Masson.
10. Bedioui, H., Nouira, K., Daghfous, A., Ammous, A., Ayari, H., Rebai, W., ... & BenSafta, Z. (2008). Primary hydatid cyst of the psoas muscle: description of 9 cases in Tunisia and review of the literature. *Medecine Tropicale: Revue du Corps de Sante Colonial*, 68(3), 261-266.
11. Abdellaoui, H., & Bouabdallah, Y. (2019). Enucleation of a hydatid cyst of the psoas muscle in a child. *The Pan African Medical Journal*, 32, 3-3.
12. Souad, H. (2000). Kyste Hydatique Du Psoas (A Propos D'un Cas°, Faculte De Medecine Et Pharmacie De Rabat.
13. Martani, M. Physiology Du Muscle. Service De Physiologie Clinique Et Des Explorations Fonctionnelles Chu Constantine, 2017-2016.
14. Gharbi, H. A., Hassine, W., Brauner, M. W., & Dupuch, K. (1981). Ultrasound examination of the hydatid liver. *Radiology*, 139(2), 459-463.
15. Tuna, S., Duymus, T. M., Yanik, H. S., Durakbasa, M. O., Mutlu, S., & Erdem, S. (2015). Hydatid cyst of biceps brachii associated with peripheral neuropathy. *International journal of surgery case reports*, 8, 150-153.
16. Ouzaa, M. R. (2017). Voluminous Muscle Hydatid Cysts A Propos De Trois Cas, *Revue Marocaine De Chirurgie Orthopédique Et Traumatologique*, 71.
17. Brunetti, E., Kern, P., & Vuitton, D. A. (2010). Expert consensus for the diagnosis and treatment of cystic and alveolar echinococcosis in humans. *Acta tropica*, 114(1), 1-16.
18. Orhan, Z., Kara, H., Tuzuner, T., Sencan, I., & Alper, M. (2003). Primary subcutaneous cyst hydatid disease in proximal thigh: an unusual localisation: a case report. *BMC musculoskeletal disorders*, 4(1), 1-4.
19. Makni, F., Hachicha, L., Mseddi, F., Hammami, H., Cheikhrouhou, F., Sellami, H., ... & Ayadi, A. (2007). Contribution of Western blotting to the diagnosis of hydatidosis. *Bulletin de la Societe de Pathologie Exotique (1990)*, 100(3), 171-173.
20. Surgical Treatment Of Liver Hydatid Cysts - Medical Encyclopedia - Medix. Available At: [Http://Www.Medix.Free.En/Sim/Surgical-Treatment-Hydatid-Cysts-Liver.Php](http://www.Medix.Free.En/Sim/Surgical-Treatment-Hydatid-Cysts-Liver.Php)
21. Ousadden, A. (2010). Hydatid Spleen Cysts: Radical or Conservative Surgery, *Pan African Medical Journal*, 5(21).
22. Soufi, M. (2011). Hydatid Cyst of The Psoas Muscle Revealed By A Febrile Abdominal Mass: About A Case, *Afr J Urol*, 15(1), 72.
23. Melis, M., Marongiu, L., Scintu, F., Pisano, M., Capra, F., Zorcolo, L., & Casula, G. (2002). Primary hydatid cysts of psoas muscle. *ANZ journal of surgery*, 72(6), 443-445.
24. Liu, Y., Wang, X., & Wu, J. (2000). Continuous long-term albendazole therapy in intraabdominal cystic echinococcosis. *Chinese medical journal*, 113(09), 827-832.