

## Report of a Hydatid Cyst Case with Biceps Brachii Involvement

### Abstract

Muscular hydatid cyst is a rare condition mainly secondary to the cysts from other organs. We hereby present an uncommon case of primary hydatid cyst found in the right biceps brachii muscle of a 36-year-old male. Magnetic resonance revealed no *Echinococcus* involvement in any other part of his body. Chest X-ray was normal, and no trace of cyst was found in the lung. In areas where echinococcosis is endemic, any tumor or mass in any part of the patient's body should be evaluated and examined for *Echinococcus* infestation. This paper is the second case report article on echinococcal biceps brachii infestation existing to this date.

**Keywords:** *Asymptomatic diseases, biceps brachii, echinococcosis, muscle, report*

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### Introduction

Echinococcosis (hydatidosis or hydatid disease) is a rare condition caused by the larval stages of the cestode *Echinococcus granulosus* (class Cestoda, in the family Taeniidae, of the genus *Echinococcus*). Although the parasite is ubiquitously distributed, South America, Central Asia, and the Mediterranean Basin are endemic areas.<sup>[1]</sup>

Intramuscular hydatid cysts are mainly secondary. Therefore, if not accompanied by any other infestation sites or clinical manifestations, primary hydatid cyst in skeletal muscles is a very rare condition, reported in 1%–4% of echinococcal infection reports.<sup>[2–4]</sup> One hypothesis suggests that this scarceness of muscular infestation is due to the presence of lactic acid in the muscular tissues.<sup>[5]</sup> Hereby, we introduce the second case of biceps brachii involvement of hydatid cyst, reported to this date.

### Case Report

E. J., a 36-year-old male, referred to Al-Zahra Hospital, which is a referral hospital in Isfahan, Iran, on May 31, 2017. He is married, has a bachelor's degree, and currently works as an employee at an office downtown Isfahan. However, he mentioned formerly working as a butcher and has had multiple direct contacts with

the sheep and dogs when we seek his past history. Six months before referring to us, he had a small palpable sensation of a mass in the right arm for the first time. The mass was gradually growing. At the time of physical examination, as well as any other time in this whole 6-month duration of the disease, he never experienced any form of constitutional signs and symptoms (e.g. fever, shivering, musculoskeletal pain, diaphoresis, or weight loss) or any kind of rashes. Family history of such a condition was negative. Due to his former job and his exposure with the sheep from endemic areas in Isfahan, we clinically suspected an *Echinococcus* infection and obtained a chest X-ray, a lung multislice computed tomography scan, an intra-abdominal sonogram, complete blood count, and hemoglobin. All of the primary paraclinical results were normal. We thereafter obtained a magnetic resonance imaging (MRI) scan and a sonogram of the right arm. Figure 1 shows the patient's biceps brachii MRI documented by a camera. As shown in Figure 1, MRIs were obtained in short interval of time inversion-recovery, and T2-weighted sequences and were suggestive of a cyst without any invasion which enhanced our clinical suspicion. We referred the patient to the surgery department for biopsy taking and diagnosis confirmation. After the operation, in which the cyst was completely resected, biopsy samples were taken to

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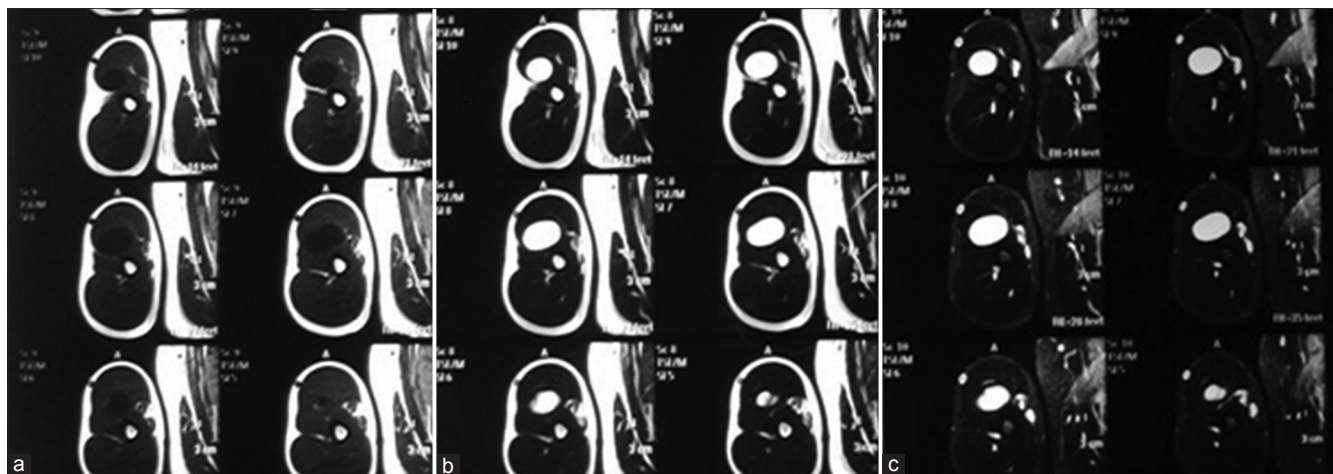


Figure 1: As it is seen in the image, the mass is low signal in T1-weighted sequence (a), high signal in T2-weighted sequence (b), and short inversion time inversion-recovery sequences (c)

the pathology laboratories. With the help of enzyme immunoassay for specific immunoglobulin G (IgG) (EIA Echinococcus Ab, Cypress Diagnostics, Langdorp, Belgium) and reversed enzyme allergosorbent test for specific IgE (REAST Allergyzen IgE, ZenTech, Angleur, Belgium), pathological reports revealed *Echinococcus* infestation of the muscle, and hydatid cyst diagnosis was confirmed.

## Discussion

Diverse cases of muscle infestation in the *Echinococcus* involvement have been reported. In one of these reports, the organ of infestation was biceps brachii.<sup>[5]</sup> However, some clinicians have reported primary involvements in other muscles as well. Psoas,<sup>[6]</sup> biceps femoris,<sup>[7]</sup> gluteus maximus,<sup>[6-9]</sup> sartorius,<sup>[10,11]</sup> soleus,<sup>[12]</sup> adductor magnus,<sup>[13]</sup> gluteus medius,<sup>[14]</sup> thoracic wall muscles,<sup>[15]</sup> pterygoids,<sup>[16]</sup> and supraspinatus<sup>[17]</sup> were a handful of examples of what we found in the databases for primary muscle infestations.

Early diagnosis of this infection is a difficult job, even in the more common hepatic or pulmonary cases. However, the diagnosis becomes even harder when the primary symptoms are associated with a primary mass in the musculoskeletal system. The main clue here is that the patient is coming from an endemic area and has a frequent job/life exposure and/or that the mass shows a slow pace of growth and does not invade the surrounding tissues, leaving a smooth margin.

## Conclusion

Hydatid cyst should be considered as one of the main differential diagnoses in such conditions. Judging by the nonaggressive behavior of the tumor, its low growth pace, imaging results, serological results, and immunohistochemical assays (and even DNA tests), such a diagnosis in endemic areas is rather likely. One question remains:

What caused this parasite to infiltrate in this individual's biceps brachii? What could possibly have eased up the process? This question remains unanswered, and further investigations are necessary.

## Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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Nil.

## Conflicts of interest

There are no conflicts of interest.

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