

Subcutaneous and intramuscular cysticercosis

Pablo Segovia-Alonso, Svetlana Zhilina

Department of Internal Medicine, Salamanca University Hospital, Salamanca, Spain

ABSTRACT

Cysticercosis is a preventable parasitic infection caused by the cestode (tapeworm) *Taenia solium*. In several countries of Africa, Asia, and Latin America, cysticercosis is endemic. In developed countries, cysticercosis is predominantly an imported disease or associated with poor regions and deprived sanitary resources. We present a case of a 94-year-old Spanish woman who was admitted to the emergency room due to a right leg trauma, edema, and superficial venous dilation of the same extremity. The patient came from a rural and remote area. With the suspected diagnosis of venous thromboembolism, x-ray and lower limb venous ultrasonography were performed, confirming the presumptive diagnosis. As a casual finding, we discovered multiples “cigar-shaped” soft-tissue calcifications in both the legs and chest x-ray. Those findings were compatible with muscular cysticercosis. The patient neither showed any symptom related to this pathology and nor were there neurological warning signs. Due to the age, basal conditions, and the family’s request, no further studies or treatments were performed.

Key words: Cysticercosis, muscular cysticercosis, neurocysticercosis, Spain, taeniasis, *Taenia solium*

INTRODUCTION

Cysticercosis is a parasitic infection endemic in many developing countries. It has been considered an eradicable disease but its prevalence remains stable due to the persistence of risk factors.

Due to globalization and the increase of immigration, this disease may be diagnosed also in nonendemic areas. In the concrete case of Europe, particularly in Spain and Portugal, cysticercosis is a growing public health problem but little is

known about the burden and epidemiology of the disease in these countries.^[1]


We report a case of a 94-year-old woman, a native from a Spanish rural zone, who presented with the incidental “rice grain” calcifications found on x-ray examination, highly suggestive of cysticercosis.

CASE REPORT

A 94-year-old Caucasian woman, a native from a Spanish rural zone, was admitted to the emergency department because of pain, edema, skin discoloration, and superficial venous dilation of the right leg. She refers injury of the affected

Address for correspondence:

Dr. Pablo Segovia-Alonso, Department of Internal Medicine, Salamanca University Hospital, Paseo de San Vicente 88-102, Salamanca - 37007, Spain.
E-mail: psegovia@usal.es

Access this article online	
Quick Response Code:	Website: www.caijournal.com
	DOI: 10.4103/2225-6482.172649

This is an open access article distributed under the terms of the Creative Commons Attribution-NonCommercial-ShareAlike 3.0 License, which allows others to remix, tweak, and build upon the work non-commercially, as long as the author is credited and the new creations are licensed under the identical terms.

For reprints contact: reprints@medknow.com

How to cite this article: Segovia-Alonso P, Zhilina S. Subcutaneous and intramuscular cysticercosis. Community Acquir Infect 2015;2:145-7.

extremity two days earlier. On the radiograph of the tibia and fibula that was performed as an initial complementary test [Figures 1 and 2], we detected multiple nodular and “dot-shaped” calcifications. No bone wounds were seen. On the chest x-ray [Figure 3], similar images were observed. All these findings were highly indicative of subcutaneous and muscular cysticercosis. Doppler ultrasound exam of the right leg was also performed, confirming the presence of the calcified lesions and the diagnosis of broad deep vein thrombosis. The patient remained asymptomatic before the leg injury, as she did not refer any muscle pains, inflammation sign and there was no past or present neurologic symptom. She recognized raw and undercooked household pork meat consumption years ago. The patient was hospitalized in order to receive parenteral treatment for the deep vein thrombosis but she declined practicing any other complementary exam. No serology, fine-needle cytology or computed tomography (CT) scanning was performed. Consequently no therapy for cysticercosis was given.

DISCUSSION

Taeniasis and human cysticercosis are two entities caused by *Taenia solium*. These pathologies are endemic in developing countries. Still, it is not uncommon to find it in more developed countries with a high rate of immigration from these endemic areas.

Areas of endemic cysticercosis include Central and South America, India, China, Southeast Asia, and sub-Saharan Africa. However, due to globalization, international tourism into remote or rural prevalent areas, and increasing migration, the incidence of cysticercosis has drastically expanded not only in developing but also in developed countries.^[2-4]

The life cycle of *Taenia solium* is complex with two or more hosts although in the human host it is the definitive one. Taeniasis occurs only in the human host, after ingestion of undercooked pork infected with cysticerci.

When humans ingest eggs excreted in the feces of a human carrier of the pork tapeworm, they could acquire cysticercosis. Humans can be infected with eggs by contaminated food and water through the fecal-oral route. Posterior hematogenous dissemination of larvae from the gut leads the cysts to different human tissues (subcutaneous, muscle, central nervous system) where they are deposited in its latent form.

Clinical manifestations of cysticercosis depend on the affected organ. Subcutaneous and muscular cysticercosis are frequently asymptomatic. Subcutaneous cysticercosis presents as small, painless and mobile nodules that after months and years, they used to disappear. Muscular cysticercosis could be a casual finding. The most remarkable finding is the presence of multiple “dots” or “cigar-shaped”



Figure 1: Rx of tibia and fibula. We observe multiple nodular and “cigar-shaped” calcifications, compatibles with muscular cysticercosis



Figure 2: Rx of tibia and fibula. We observe multiple nodular and “cigar-shaped” calcifications, compatibles with muscular cysticercosis



Figure 3: Chest x-ray: We observe multiple nodular and “dot-shaped” calcifications, compatibles with muscular cysticercosis, mostly in the upper right arm

calcifications in the muscle bundles, when radiography studies are performed for an unrelated reason. In exceptional

cases, massive parasite burdens can enlarge areas of the limb, producing muscular pseudohypertrophy.

When cysts develop in the central nervous system, they cause neurocysticercosis. The parasite causes symptoms mainly as the direct consequence of the inflammatory response that accompanies cyst degeneration. Other causes could be the mass effect or the secondary block of the cerebrospinal fluid circulation. As a result of that, seizures are the most common presentation of neurocysticercosis.

Less frequent symptoms are intracranial hypertension, motor deficits, giant cyst or stroke.^[5]

There are different methods of serological diagnosis. Techniques such as enzyme-linked immunosorbent assay (ELISA) or the enzyme-linked immunoblot assay has been used. However, imaging is the most important and powerful way in order to determinate the number, size, and location of lesions. In the case of neurocysticercosis, CT and magnetic resonance imaging (MRI) are the most used tests.^[6]

Cysticercosis outside the central nervous system does not usually need treatment. Nevertheless, neurocysticercosis used to be associated with significant morbidity and mortality. The currently accepted therapeutic scheme is 8-14 days of albendazole treatment (15 mg/kg daily, divided in two doses) with simultaneous administration of steroids in order to reduce the inflammatory response due to the death of the parasite. It must be taken into account that asymptomatic neurocysticercosis does not usually require treatment.^[7]

While cysticercosis was endemic in Europe many years ago, different sanitary strategies have achieved the decrease of

its incidence. Nevertheless, factors such as globalization and immigration are determinants of a new onset of this disease. The latest researches emphasize that immigration could be responsible for the onset of numerous cases. Because of that, the resurgence of cysticercosis is a serious public health concern all over the world.

Financial support and sponsorship

Nil.

Conflicts of interest

Dr. Segovia and Dra. Zhilina have received speaker honoraria from Bristol-Myers Squibb-Pfizer.

REFERENCES

1. Del Brutto OH. Neurocysticercosis in Western Europe: A re-emerging disease? *Acta Neurol Belg* 2012;112:335-43.
2. Fabiani S, Bruschi F. Neurocysticercosis in Europe: Still a public health concern not only for imported cases. *Acta Trop* 2013;128:18-26.
3. Coral-Almeida M, Gabriël S, Abatih EN, Praet N, Benitez W, Dorny P. *Taenia solium* human cysticercosis: A systematic review of sero-epidemiological data from endemic zones around the world. *PLoS Negl Trop Dis* 2015;9:e0003919.
4. Nkwengulila GG. A Review of human cysticercosis and diagnostic challenges in endemic resource poor countries. *Adv Infect Dis* 2014;4:207-13.
5. García HH, González AE, Evans CA, Gilman RH; Cysticercosis Working Group in Peru. *Taenia solium* cysticercosis. *Lancet* 2003;362:547-56.
6. Garcia HH, Rodriguez S, Friedland JS; Cysticercosis Working Group in Peru. Immunology of *Taenia solium* taeniasis and human cysticercosis. *Parasite Immunol* 2014;36:388-96.
7. Zammarchi L, Strohmeyer M, Bartalesi F, Bruno E, Muñoz J, Buonfrate D, *et al.*; COHEMI Project Study Group. Epidemiology and management of cysticercosis and *Taenia solium* taeniasis in Europe, systematic review 1990-2011. *PLoS One* 2013;8:e69537.