Extensive cardiac cysticercosis—an interesting autopsy finding

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1. Introduction

Human cysticercosis is caused by dissemination of embryos of Taenia solium from the intestine via the hepatoportal system to the tissues and organs of the body[1]. Most common organs affected are subcutaneous tissues, skeletal muscles, lungs, brain, eyes, liver and occasionally, heart[2]. Widespread dissemination of the cysticerci can result in the involvement of almost any organ of the body, however heart involvement is uncommon. Demonstration of cysticerci from the autopsy specimen has been the rule to diagnose heart involvement in disseminated cysticercosis.

2. Case report

We received a requisition for histopathological examination of heart of a 30 year old unknown female. The autopsy had been conducted in a peripheral hospital. All the organs had been reported to be normal on gross examination except the heart which was sent to us for histopathological examination to ascertain the cause of death.

Figure 1. Gross examination of the heart.
a: Specimen of heart studded with innumerable cysts (anterior view); b: Cut surface showing extensive involvement of all the chambers of heart. White head is also evident in many of the cysts (arrows).
On gross examination, the heart weighed 320 g and measured (12 cm × 9 cm × 5 cm). The external surface was studded with numerous cysts (more than 100 in number) varying in diameter from 0.3–1.2 cm (Figure 1a). On cutting, right and left ventricular walls, and inter-ventricular septum measured 0.8, 2.0 and 2.2 cm in thickness, respectively. Cut surface of the heart also showed innumerable cysts filled with clear fluid and a white bead-like structure in many of them (Figure 1b).

Microscopic examination of the heart revealed widespread involvement of myocardium by numerous cysticerci (Figure 2).

![Figure 2. H&E stained microsection from the myocardium showing structure of cysticercus.](image)

3. Discussion

Widespread dissemination of cysticerci throughout the human body was reported as early as 1912 by British army medical officers stationed in India[3]. In 1964, Reddy and colleagues, reported the first case of cysticercosis involving heart from Guntur in India[4]. Since then cardiac cysticercosis has been reported from India and all over the world[5–14].

In the developing countries like India, cysticercosis, along with other parasitic infections, is a major public health problem. Notwithstanding the extensive advancement in the radiological investigative field, very few cases of antemortem diagnosis of disseminated cysticercosis have been reported from India in the past few years[2,6,8]. Hence, better orientation of the clinicians with judicious and thoughtful use of radiological investigations is required for early diagnosis of cases of cysticercosis and promptly treating them as early as possible.

Perusal of the literature reveals that no case study has demonstrated such extensive involvement of heart in cysticercosis. Hence, in addition to reporting a case of cardiac cysticercosis, the present case study aims to add to the literature, some interesting illustrations of extensive cardiac cysticercosis on gross and histopathological examination.

Conflict of interest statement

We declare that we have no conflict of interest.

References

[1] Rabiela MT, Rivas A, Rodriguz J, Castillo S, Cancino FF. Anatomopathological aspects of human brain cysticercosis. In: Flisser A, Willms K, Laclette JP, Larralde C, Ridaura C, Beltran F. (eds.) Cysticercosis: present state of knowledge and perspectives. New York: Academic Press; 1982, p. 179–200.
[2] Bhalla A, Sood A, Sachdev A, Varma V. Disseminated cysticercosis: a case report and review of the literature. J Med Case Reports 2008; 2: 137–139.
[3] Krishnaswami CS. Case of Cysticercus cellulose, Ind Med Gaz 1912; 27: 43–44.
[4] Reddy DJ, Raghavachar V, Sgaran BM, Vasantha VC. Cysticercosis in Guntur. J Indian Med Assoc 1964; 43: 207–212.
[5] Eberly MD, Soh EK, Bannister SP, Tavaf-Motamen H, Scott JS. Isolated cardiac cysticercosis in an adolescent. Pediatr Infect Dis J 2008; 27(4): 369–371.
[6] Bhalla A, Sood A, Sachdev A, Varma V. Heart involvement in disseminated cysticercosis: a case report and review of literature. Indian Heart J 2008; 60: 260–262.
[7] Shogan PL, Yasmer JF, Monson M. Cardiac cysticercosis. Am J Roentgenol 2009; 192: 212–213.
[8] Jain BK, Sankhe SS, Agrawal MD, Naphade PS. Disseminated cysticercosis with pulmonary and cardiac involvement. Indian J Radiol Imaging 2010; 20: 310–313.
[9] Park SY, Kong MH, Kim JH, Song KY. Disseminated cysticercosis. J Korean Neurosurg Soc 2011; 49(3): 190–193.
[10] Kirchhoff LV, Weiss LM, Wittner M, Tanowitz HB. Parasitic diseases of the heart. Front Biosci 2004; 9: 706–723.
[11] Lino Júnior Rde S, Ribeiro PM, Antonelli EJ, Faleiros AC, Terra SA, dos Reis MA, et al. Developmental characteristics of Cysticercus cellulosae in the human brain and heart. Rev Soc Bras Med Trop 2002; 35: 617–622.
[12] Cavellani CL, Faleiros AC, Lino Rde S, dos Reis MA, Teixeira Vde P. Cysticercosis in the elderly. An Diagn Pathol 2007; 11(5): 330–333.
[13] Foyaca–Sibat H, Ilanez–Valdes LdeF. Generalized cysticercosis with cardiac involvement. Internet J Neurol 2007; 7(2). [Online] Available from: http://www.ispub.com/journal/the_internet_journal_of_neurology/volume_7_number_2_5/article/generalized_cysticercosis_with_cardiac_involvement.html [Accessed on 20 December, 2010]  
[14] Hidron A, Vogenthaler N, Santos–Preciado Jose’ I, Rodriguez–Morales AJ, Franco–Paredes C, Rassi A. Cardiac involvement with parasitic infections. Clin Microbiol Rev 2010; 23(2): 324–349.
[15] Thomas MB, Thomas KM, Awotetu AA, Blanco–Blanco E, Anwary M. Cardiocysticercosis. S Afr Med J 2007; 97(7): 504–505.
[16] Bastos AL, Marchiori E, Gasparetto EL, Andrade BH, Junior GC, Carvalho RC, et al. Pulmonary and cardiac cysticercosis: helical CT findings. Br J Radiol 2007; 80: e58–e60.